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MAXIMA OF *O CETI* AND OTHER VARIABLES (1899).

By Rose O'Halloran.

Whether the increase of light in *o Ceti* be caused by collision, internal explosive power, or some other cosmical crisis, it became evident this season that the mysterious agency was withheld from demonstrating its fullest effects. During the maxima that occurred in 1894–95–96, *o Ceti* was distinctly brighter than δ of fourth magnitude; in 1897 it was of fully third magnitude; and in 1898 it formed a conspicuous link in the fragmentary outline named The Whale, being second only to β, now the brightest in the constellation.

The following notes show the rates of increase by which the small maximum of the present year was attained:—

July 7. Brighter than adjacent star of 7–8 magnitude to the north; dimmer than *71 Ceti* of 6–7 magnitude.
22. In full moonlight as bright as *69 Ceti.*
30. Slightly brighter than *69.* Faint moonlight.
Aug. 13. Equal to ξ *Piscium*, but redder in tint on a dark sky.
19. Half a magnitude less than δ. Moonlight.
22. One fourth less than δ. Full moonlight.
30. Dimmer than δ. Seen through haze.
Sept. 5. A half magnitude less than δ on a dark sky.
Sept. 14. In light of the half-moon it seems brighter than δ. In a few hours when near the meridian after the moon had set, *o Ceti* seemed scarcely equal to δ. It was brighter than ξ *Piscium*, but much fainter than α *Piscium.*
26. Very nearly as bright as δ. Dark moonless sky.
Oct. 1. A half magnitude less than δ. No moonlight.
8. Slightly brighter than ξ *Piscium.* No moonlight.
13. Equal to ξ *Piscium* in the light of the gibbous moon.
17. Equal to ξ *Piscium.* Nearly full moon 20° distant.
21. Less bright than ξ *Piscium;* brighter than *69 Ceti.* Gibbous moon 30° distant.

U Orionis, a reddish variable of the *o Ceti* type, with a period of about one year, attained a maximum that made it visible without magnifying power on clear dark nights in April last. It is less than half a degree east of X^1 *Orionis.*

Mar. 31. Scarcely as bright as X^2 of 6th magnitude, but brighter than the white star one third of a degree west of X^1.
April 5, 7, 11, 12. Ditto.
20. Equal to above-mentioned white star. Moonlight.
28. Less than white star.
May 1. Ditto. It has a hazy appearance different from the clear glow at maximum.
5. It is dimmer than the white star, but brighter than the nearest star of 8th magnitude towards the northwest.

A low altitude, sunlight, and cloudy nights hindered further observations until the beginning of October, when it was found to be of 10th magnitude.

Several observations were obtained of the recently found variable *W Lyræ* of irregular period. A maximum was predicted for October 13th, but cloudiness and moonlight prevented satisfactory comparisons, with the exception of the following:—

October 3. The variable is of 11th magnitude.
8. Ditto.
10. Equal to adjacent star of 10th magnitude.
11. It seems slightly decreased.
22. It is fully of 10th magnitude.

SAN FRANCISCO, October 23, 1899.

PLANETARY PHENOMENA FOR JANUARY AND FEBRUARY, 1900.

By MALCOLM MCNEILL.

JANUARY.

The Earth is in perihelion on January 1st, 11 P. M., P. S. T.

Mercury is a morning star throughout the month, having passed greatest west elongation on December 25th. On January 1st it rises rather more than an hour and a half before sunrise, and the interval is more than an hour until nearly the middle of